Tahoe Keys Lagoons Aquatic Weeds Control Methods Test Environmental Impact Statement: Recommendation to Certify

TRPA Advisory Planning Commission Meeting

January 18, 2022

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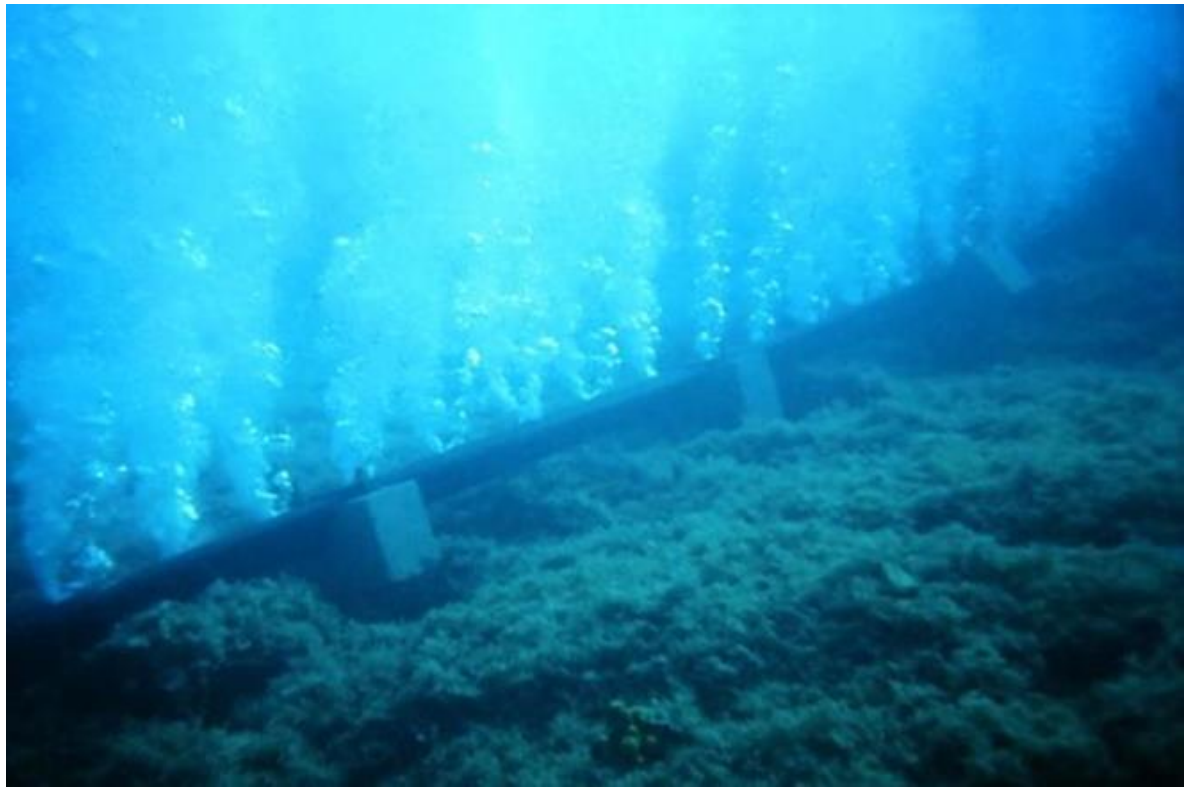
Aquatic Invasive Species prevention and control has been a top priority initiative for more than a decade

Invasive aquatic weeds in the Keys lagoons are the #1 AIS control threat

This decision comes to you differently than a typical land use or natural resource planning process

Tahoe Keys homeowners have been fighting the weeds problem for decades


To break the log jam,
we regrouped around a more collaborative approach.



The stakeholders agreed to address unknowns with a carefully designed test

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Overview

- Purpose and Need
- Collaboration and EIS Development
- Impact Analysis and Mitigations
- Public Comment and Responses
- Final EIS
- Summary of Findings
- Motion to Recommend

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Purpose and Need

- Complex problem
- More information is needed
- TKPOA response to infestation
  - Proposal to use herbicides
- Collaboration
- Conduct a TEST
  - Scientific assessment

Public Engagement and Scoping

- Public scoping
  - Implement a test to identify what control methodologies will have the best chance of control for the long-term
  - Input on the proposed test project and alternatives to be analyzed
  - No project alternative
- Extensive data collection
  - Baseline conditions
  - Nutrient cycling

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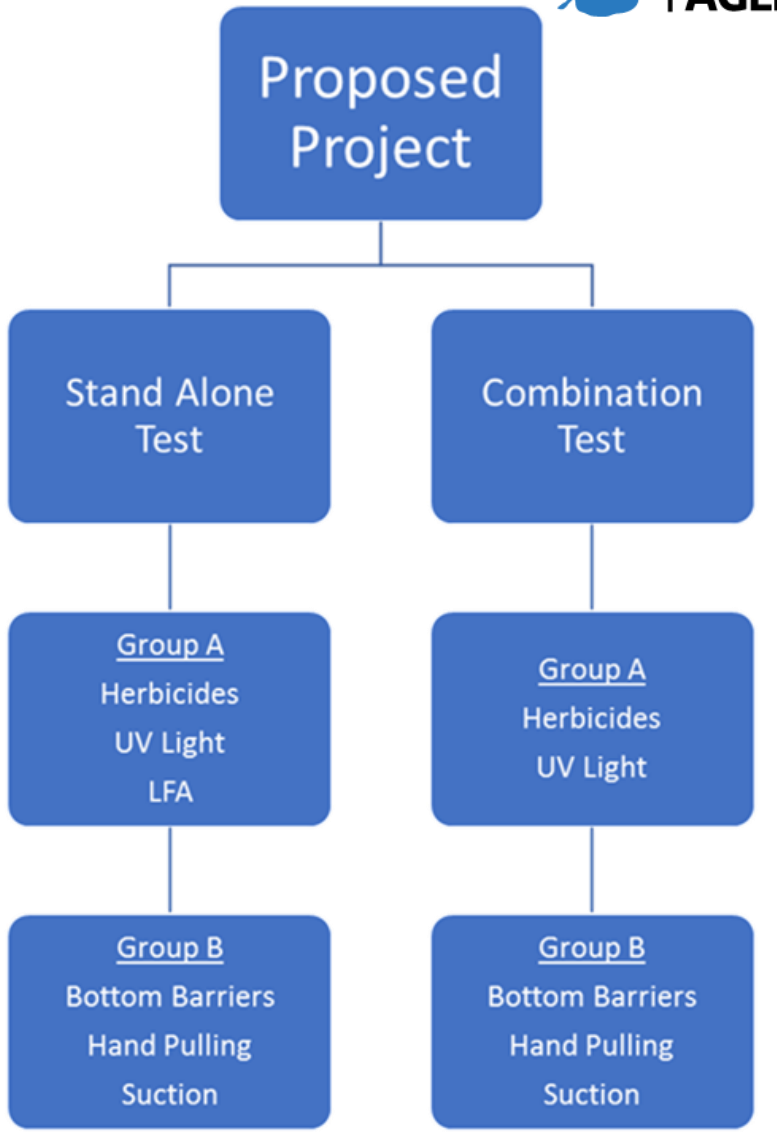
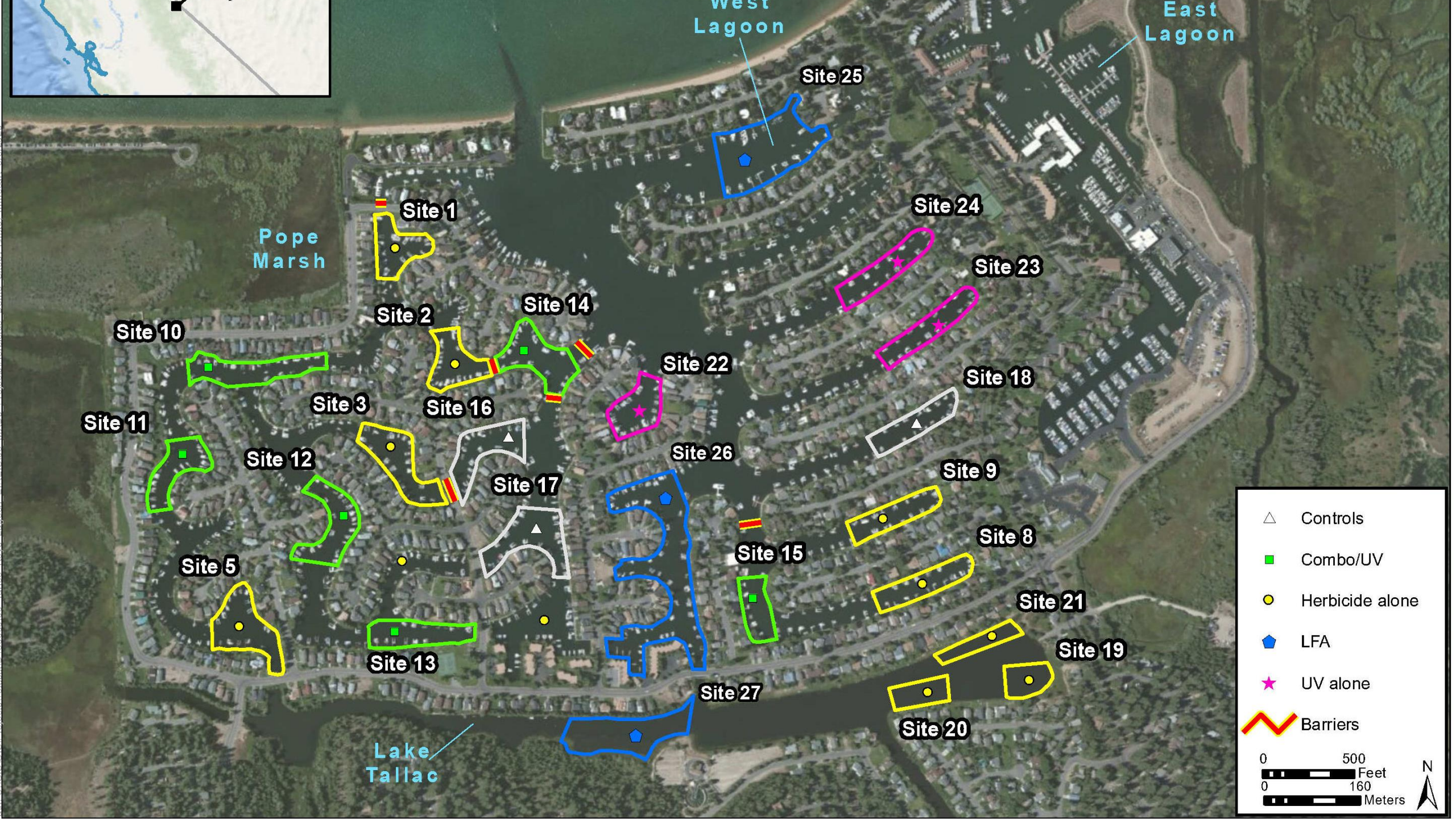
Project Description

- Development of a Test project
  - Initial treatment to provide **knockback**
    - *Group A- Ultraviolet light (UV), targeted aquatic herbicides, Laminar Flow Aeration (LFA)*
  - Follow-up methods that can be used to **maintain** manageable levels
    - *Group B- UV, bottom barriers, hand pulling and diver suction*
  - Goals of the test
    - Achieve 75% reduction in biomass
    - What methods can be successful for the long-term?




West Lagoon
East Lagoon
Pope Marsh
Lake Tallac
Site 1
Site 2
Site 3
Site 5
Site 8
Site 9
Site 10
Site 11
Site 12
Site 13
Site 14
Site 15
Site 16
Site 17
Site 18
Site 19
Site 20
Site 21
Site 22
Site 23
Site 24
Site 25
Site 26
Site 27
Controls
Combo/UV
Herbicide alone
LFA
UV alone
Barriers
0
500
Feet
0
160
Meters
N

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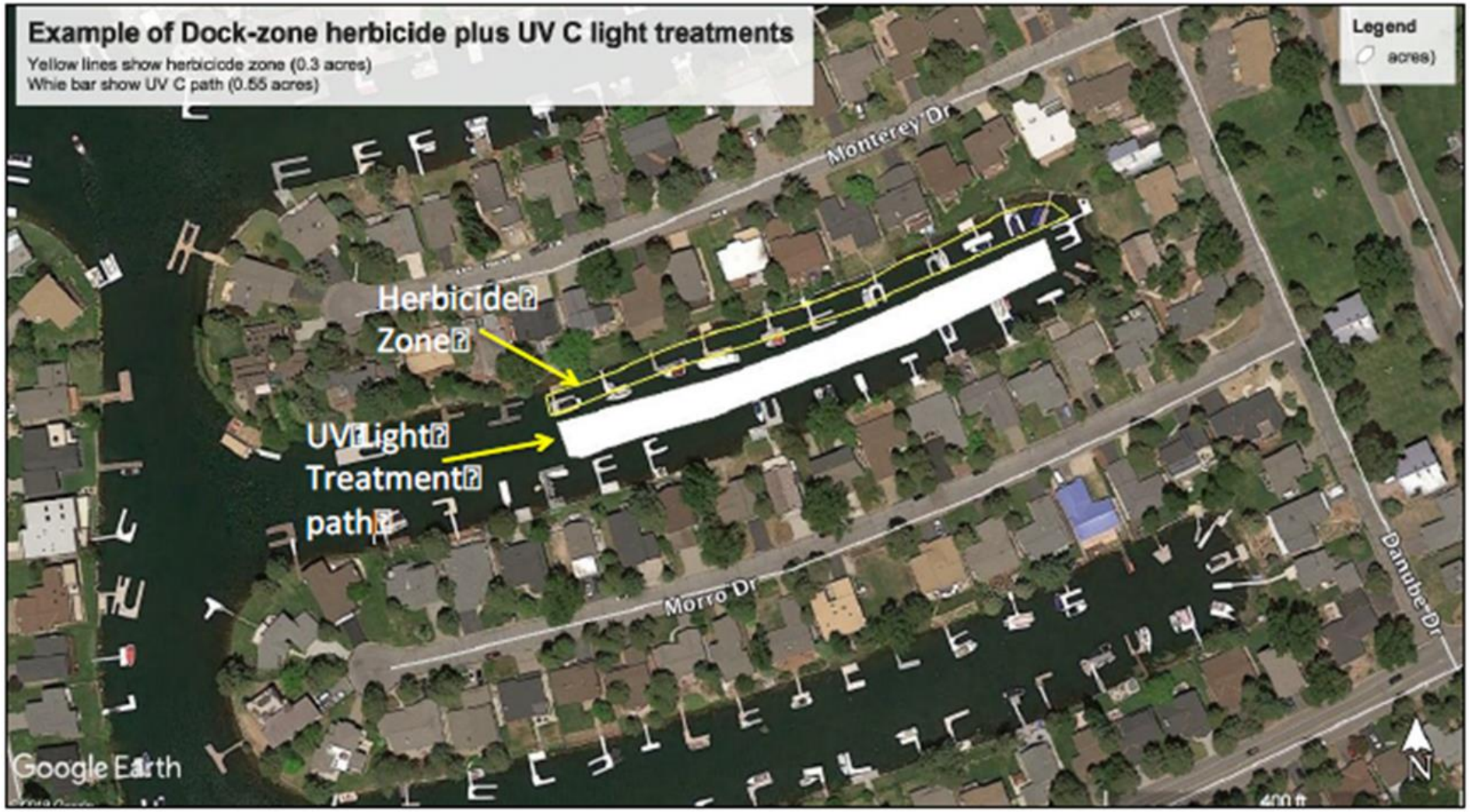

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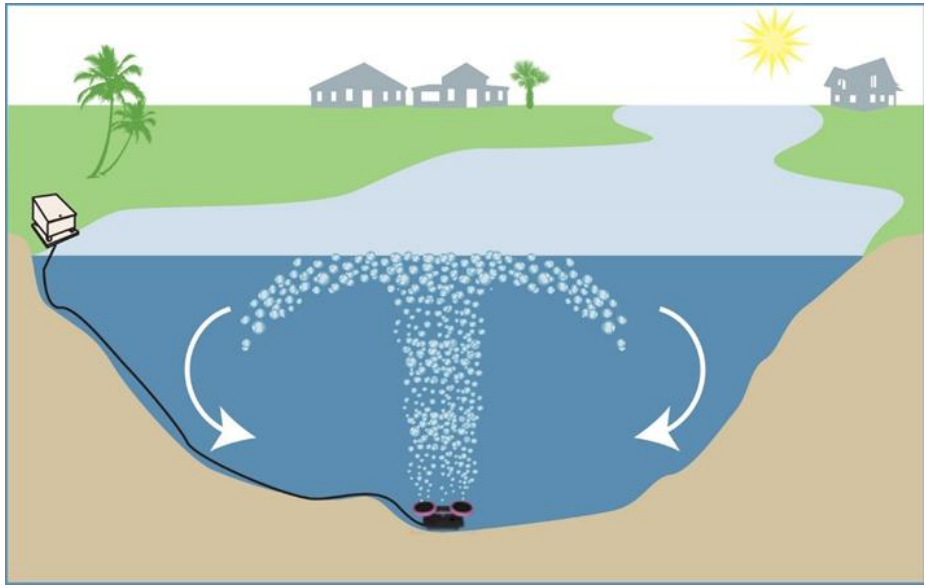
Non-herbicide Alternative

- UV light
- Laminar Flow Aeration



Dredge Alternative

- Dredging
  - Remove organic layer, roots and turions
- Substrate replacement
  - Less suitable habitat

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No Action

- No test or ability to obtain information
- Weeds continue to spread

Study of Environmental Impact Issues

- 43 Issues were identified and evaluated
  - Most issues in the lagoons where the activities would occur
    - 6 Environmental Health (people, aquatic life)
    - 1 Hydrology
    - 7 Water Quality
    - 9 Aquatic Ecology
  - Also evaluated Earth Resources, Air Quality, Greenhouse Gas Emissions, Terrestrial Ecology, Land Use, Recreation, Utilities, Traffic/Transportation, Noise, and Cultural
- Except for No Action, impacts can be mitigated to be less than significant for each issue

Environmental Impacts of Control Methods Test

- Resource protection measures addressed many issues
- 10 Issues were Potentially Significant without mitigation
  - Exposure and health risks to workers applying herbicides
  - Detectable concentrations of herbicide chemicals in lagoon water
  - Short-term increases of aluminum in lagoon water
  - Increased harmful algal blooms (HABs)
  - Oxygen depletion in lagoon water
  - Increased phosphorus and nitrogen in lagoon water
  - Effects on non-target aquatic plants, including sensitive species
  - Changes in aquatic plant communities
- Impacts for all issues were Less Than Significant after mitigation

Mitigation for Control Methods Test

- Herbicides
  - Applicator training and licensing
  - Application rates < label rates, chemical breakdown, other resource protection measures = less than significant risk of persistence
  - Spill prevention & response plan requirements to prevent excess concentrations
  - Aeration if needed to accelerate aerobic degradation
- Aluminum – best management practices to minimize sediment disturbance
- Phosphorus, nitrogen, and harmful algal blooms
  - Timing and size of treatments minimize decomposing plant tissue
  - Lanthanum-modified clay if needed to remove phosphorus from lagoon water
  - Aeration if needed to make conditions less favorable for HABs

Mitigation for Control Methods Test (cont.)

- Dissolved oxygen
  - Timing and size of treatments minimize decomposing plant tissue
  - Aeration if real-time DO monitoring indicates the need
- Spring macrophyte surveys to adjust test site boundaries
  - Concentrate on target species
  - Avoid impacts to non-target plants, including sensitive species
  - Avoid adverse impacts to aquatic plant community composition

Environmental Impacts and Mitigation for Action Alternative 1

- Most of the potentially significant issues and mitigation as proposed project
  - Aluminum: BMPs to minimize sediment disturbance
  - Phosphorus, Nitrogen and HABs: timing and limited size of treatments, use of aeration or lanthanum-modified clay if need indicated by monitoring
  - Dissolved oxygen: timing and limited size of treatments, use of aeration if needed
  - Non-target aquatic plant species and community composition: spring macrophyte surveys to adjust test site boundaries

Environmental Impacts and Mitigation for Action Alternative 2

- Potentially significant impacts and mitigations different from other alternatives
- Greater risk from aluminum in sediments drives the need for more mitigation
    - Spill prevention during dredge spoils transport & handling
    - Treatment and testing dewatering effluent
    - Leak prevention, spill control, containment plans
    - Turbidity curtain barriers at test sites
- Potential contribution to flooding from discharge of dewatering effluent: discharge to sanitary sewer or discharge to Lake Tallac when water levels are low
- Turbidity controls for dredging, substrate replacement, dewatering
- Dissolved oxygen depletion: timing and limited size of treatments, use of aeration if needed, turbidity controls

Environmental Impacts and Mitigation for Action Alternative 2 (cont.)

- Increases in phosphorus and nitrogen
  - Turbidity controls for dredging, substrate replacement, dewatering
  - Effluent treatment to remove P and N
- Spring macrophyte surveys to adjust test site boundaries
- Effects on non-target riparian and wetland habitats and species
  - discharge to sanitary sewer or discharge to Lake Tallac when water levels are low

Environmental Impacts for No Action Alternative

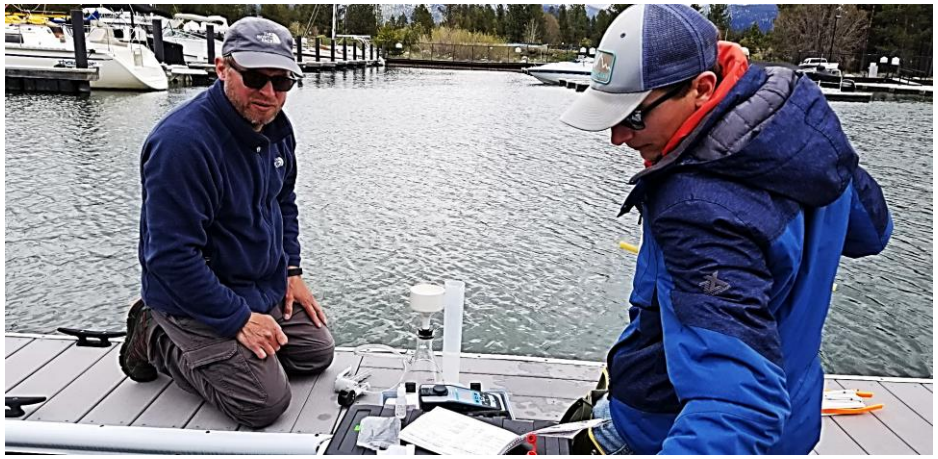
- Ongoing risk of short-term aluminum increases during sediment disturbance
- Ongoing potential risks from harmful algal blooms
- Long-term risks of water quality impacts from growing aquatic invasive weed problem
  - Increased water temperature
  - Increased turbidity = reduced water clarity
  - Increased floating weed fragments
  - Increased changes in pH
  - Lower dissolved oxygen
  - Increased phosphorus and nitrogen cycling from sediments into the water

Environmental Impacts for No Action Alternative (cont.)

- Increased long-term impacts to aquatic ecology
  - Displacement of native plant species with invasive species
  - Shifts in aquatic plant communities
  - Reduced health of benthic invertebrate community
  - Increased risks to special status fish species
  - Reduced suitability of habitat for native or recreationally important fish species
  - Increased spread of aquatic invasive species
- Reduced quality of recreational boating in Lake Tahoe
- Long-term impacts to TRPA recreation thresholds
- Potential long-term impacts to water supplies at Lake Tahoe

Environmental Impact Evaluation Process

- Initial Study and Environmental Checklist
  - Reviewed existing information
  - Identified potential issues, need for EIS and EIR
- 2019 Baseline Study
- Team of 5 PhD specialists evaluated aquatic impacts:
  - Environmental Toxicologist
  - Limnologist
  - Aquatic Plant Specialist
  - Fisheries Biologist
  - Hydrologist
- Nutrient loading/nutrient cycling model



Public Comment and Responses

- 60-day public comment period
- Final includes responses to all comments
- Themes
  - Herbicide use
  - Nutrients
  - Harmful Algal Blooms
  - Barrier to the Keys
  - Drinking water
  - TSAC

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Final EIS

- Released December 29, 2021
- Documents all comments received and agency responses
- Clarifications and corrections

Table ES-1 Summary of Impacts and Mitigation Measures

Impact Issues	Significance Before Mitigation	Mitigation	Resource Protection Measures	Significance After Mitigation
B = Beneficial **NI** = No impact **LTS** = Less than significant **PS** = Potentially Significant **SU** = Significant and Unavoidable **NA** = Not Applicable **PP** = Proposed Project **AA1** = Action Alternative 1 **AA2** = Action Alternative 2 **NAA** = No Action Alternative				
		lower and the risk of contributing to flood conditions would be negligible.		
Water Quality				
Issue WQ-1: Water Temperature Effects. Short-term heating from ultraviolet light may occur during treatment. Where aquatic weed density is reduced by any of the treatment methods, a long-term increase in solar radiation penetration may add heat to the water. Increased water circulation during LFA operations is expected to eliminate thermal density stratification, leading to cooler waters near the surface and warmer waters at depth.	PP = LTS AA1 = LTS AA2 = LTS NAA = PS	~~**WQ1 Real-Time Temperature Monitoring and Adjustments to Treatment Rates:** Real-time temperature monitoring during the implementation of ultraviolet light testing or injection of hot water under bottom barriers would be used to determine whether the rates of ultraviolet light application or injection of hot water under barriers would need to be reduced.~~	**WQ1 Real-Time Temperature Monitoring and Adjustments to Treatment Rates:** Real-time temperature monitoring during the implementation of ultraviolet light testing or injection of hot water under bottom barriers would be used to determine whether the rates of ultraviolet light application or injection of hot water under barriers would need to be reduced.	PP = LTS AA1 = LTS AA2 = LTS NAA = SU
Issue WQ-2: Sediment Disturbance and Turbidity. Sediment disturbance would be caused by suction dredging under Action Alternative 2, and by installation, startup, and removal of LFA systems; or installation and removal of bottom barriers under the Proposed Project or Action Alternative 1. These actions could cause short-term increases in turbidity and a temporary decline in water clarity within and near treatment areas. There is also a potential for short-term increased turbidity and decreased water clarity during suction dredging, from any accidental spills during transport and processing of dredge spoils, or during discharge of treated effluent from sediment	PP = LTS AA1 = LTS AA2 = PS NAA = PS	~~**WQ-2: Real-Time Turbidity Monitoring and Adjustments in Practices.** Divers would minimize sediment disturbance where employed in Group B activities (hand-pulling of weeds or removal of bottom barriers) because underwater visibility is necessary to carry out the work, and work would have to cease if the water became turbid. Turbidity monitoring would be conducted in association with these activities, and if permit limits could be~~	**WQ-2a: Real-Time Turbidity Monitoring and Adjustments in Practices.** Divers would minimize sediment disturbance where employed in Group B activities (hand-pulling of weeds or removal of bottom barriers) because underwater visibility is necessary to carry out the work, and work would have to cease if the water became turbid. Turbidity monitoring would be conducted in association with these activities, and if permit	PP = LTS AA1 = LTS AA2 = LTS NAA = SU

Summary of Findings

- TRPA Code Section 3.7 *Environmental Impact Statements*
  - Preparation & Contents of an EIS
  - Draft EIS
    - Comment Period
    - Reasonable range of alternatives
  - Final EIS
  - All potential impacts of the proposed project can be mitigated to less than significant

Requested Motion:

Recommend Certification of the Environmental Impact Statement for the Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Staff requests that the APC take the following actions based on the Final EIS, this staff memorandum, and the complete administrative record:

I. A motion to recommend the Governing Board certify the Final EIS as technically adequate as set forth in Attachment A.
II. A motion to recommend the Governing Board make the Compact Article VII findings for the Final EIS as set forth in Attachment A.

For the motions to pass, a majority of a quorum of the members present must vote in the affirmative.

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Thank You!

www.TahoeKeysWeeds.org

https://www.trpa.org/document/projects-plans/